



Hunters Point Naval Shipyard

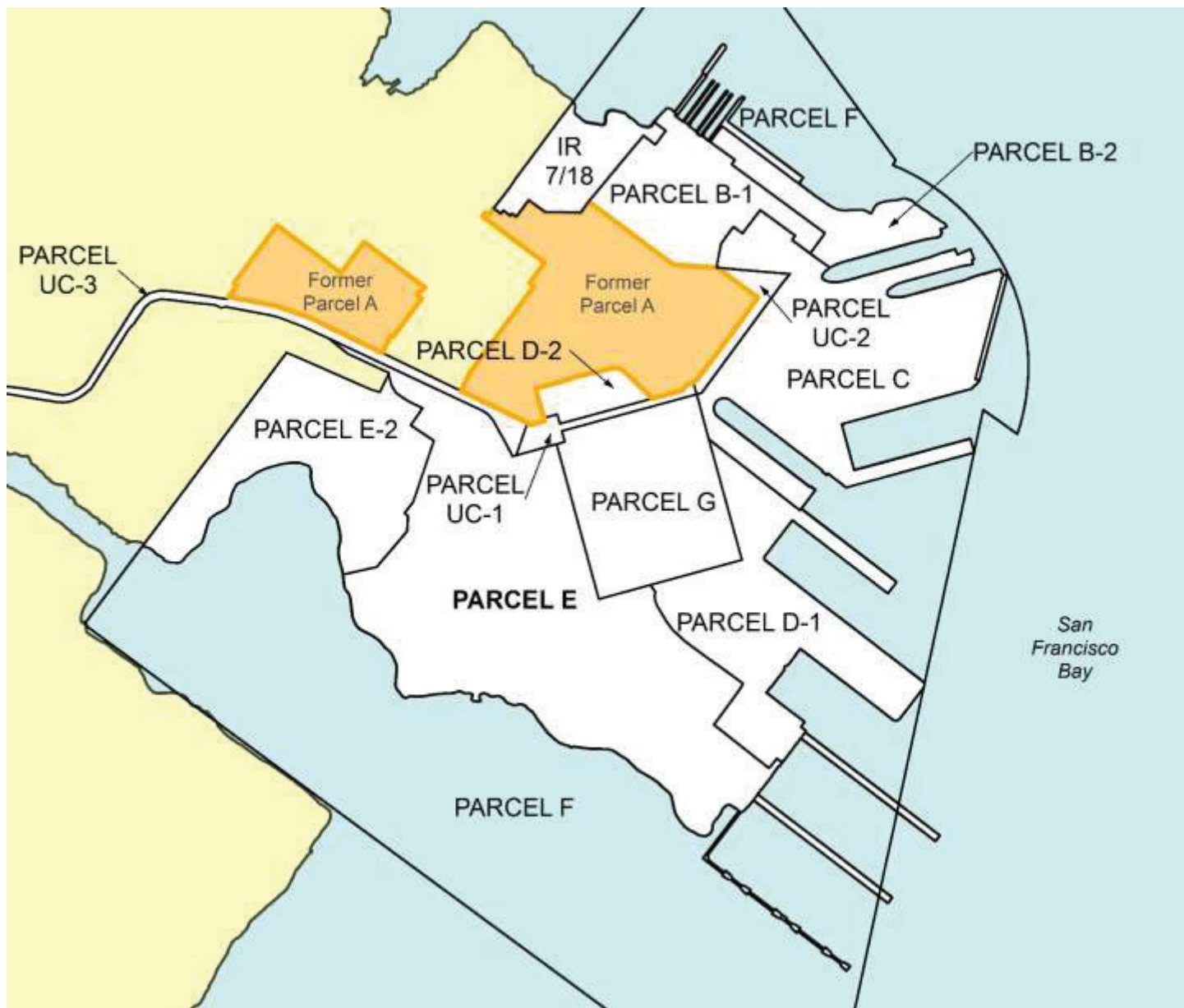
**Hunters Point Environmental
Justice Task Force Meeting
January 21, 2016**

Superfund process

- Sampling
- Risk Assessment
- Cleanup Plan
 - Soil
 - Buildings
 - Groundwater
 - Sediment
 - Soil gas
- During construction
- Closure and transfer
- After transfer
- Community involvement throughout







contacts

The Navy and regulatory agencies working to clean up HPNS are available to answer questions.



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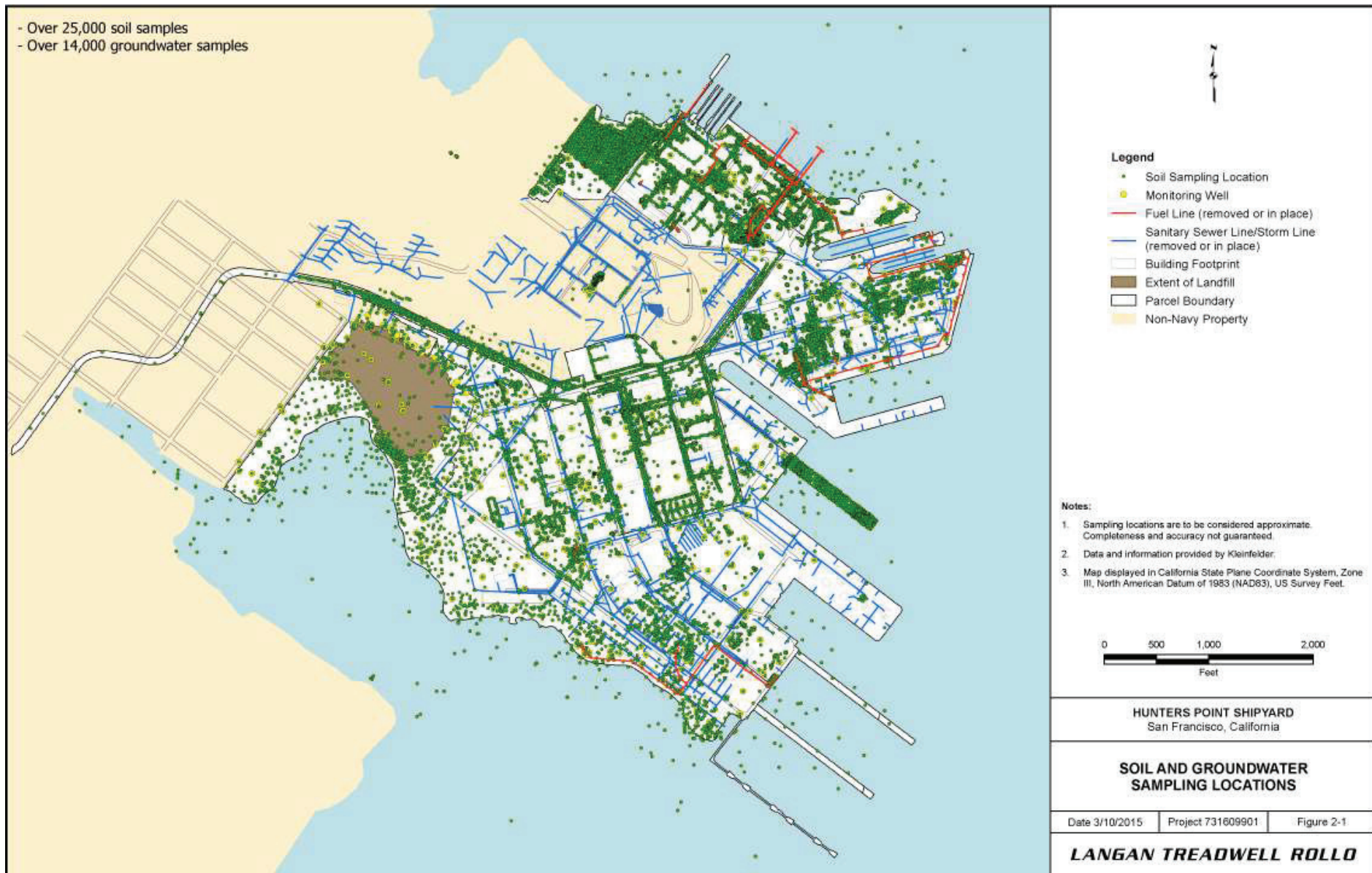


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What are highest concerns?

- Over 25,000 soil samples
- Over 14,000 groundwater samples





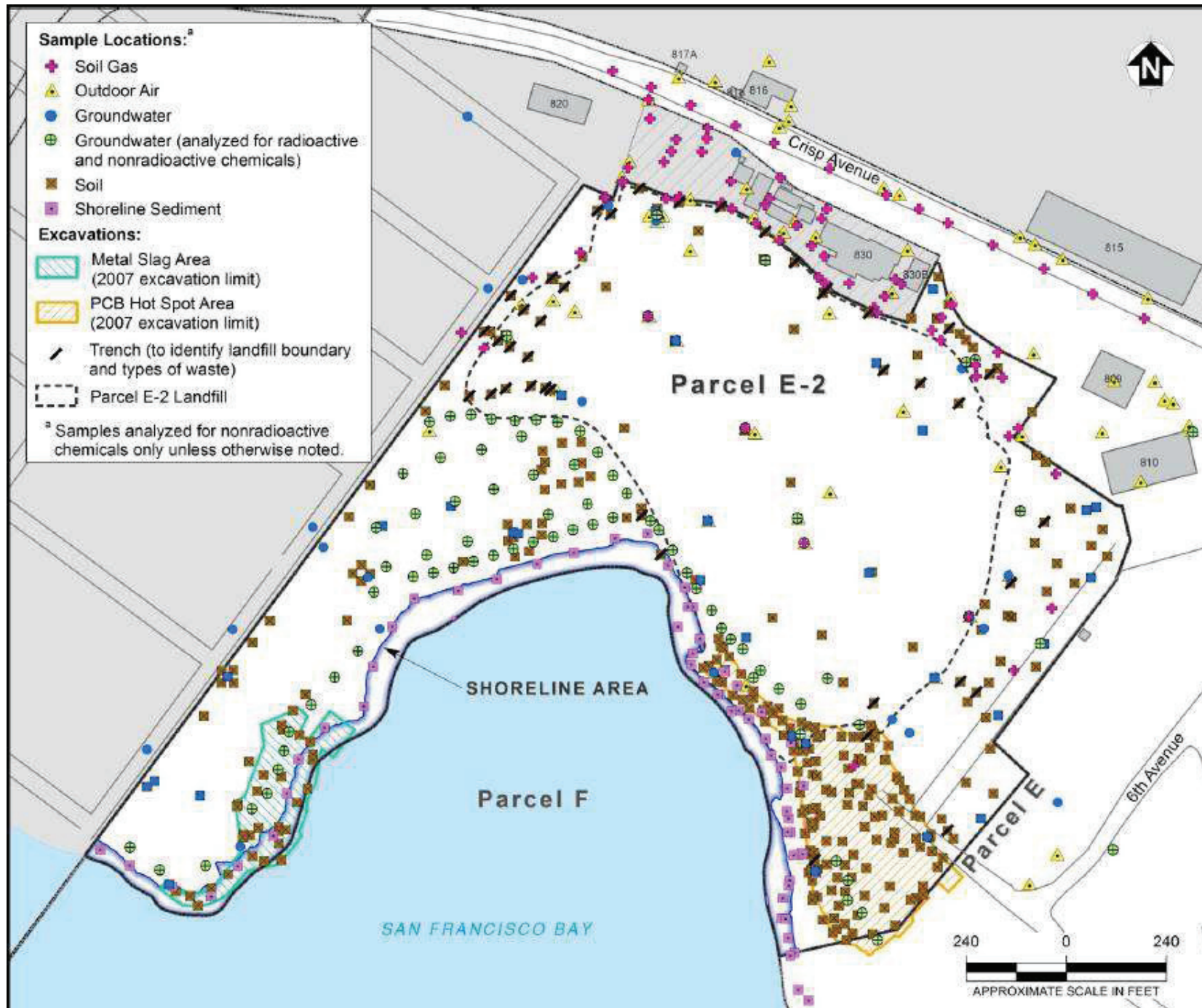
Sample Locations:^a

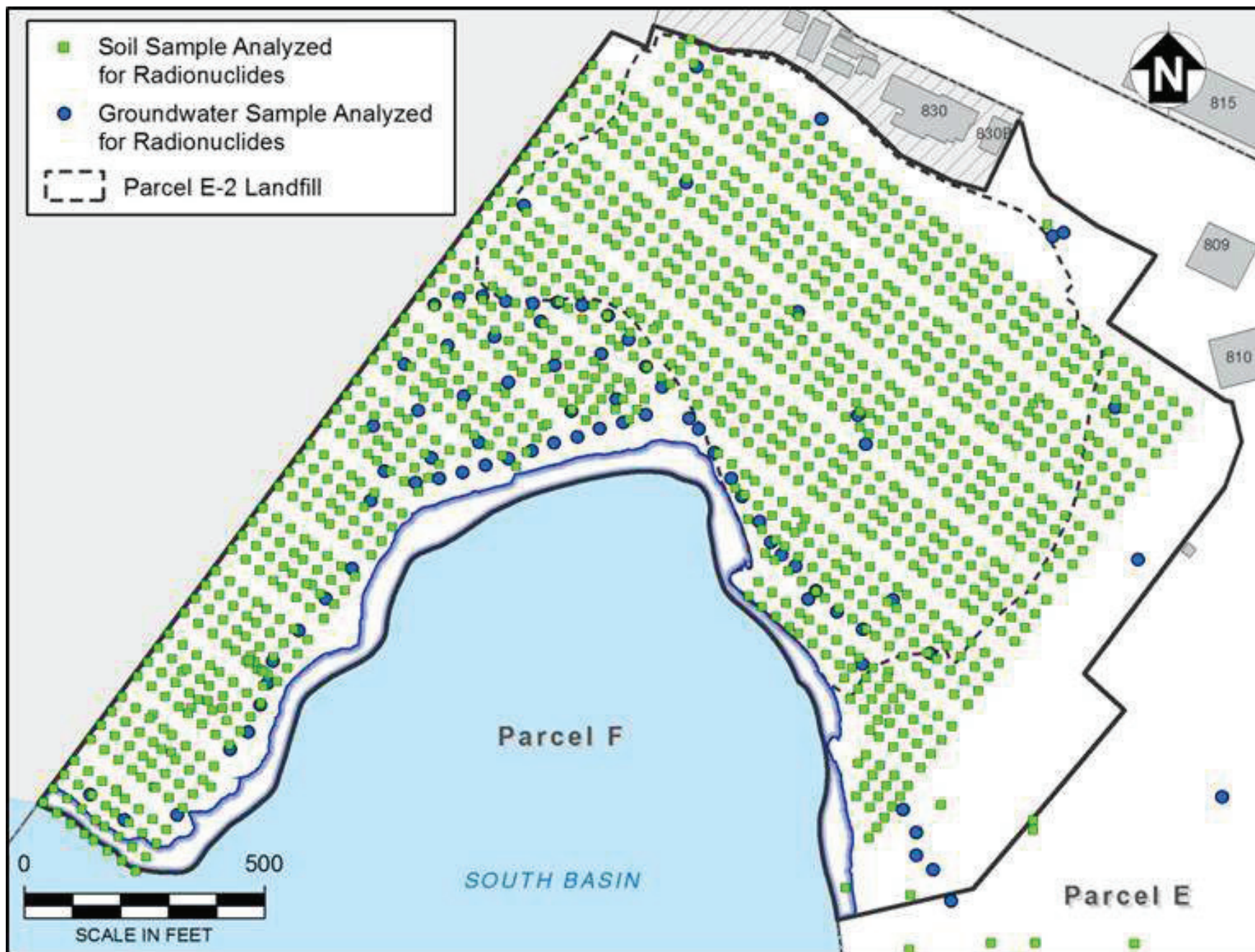
- ✦ Soil Gas
- ⚠ Outdoor Air
- Groundwater
- ⊕ Groundwater (analyzed for radioactive and nonradioactive chemicals)
- Soil
- Shoreline Sediment

Excavations:

- ▨ Metal Slag Area (2007 excavation limit)
- ▨ PCB Hot Spot Area (2007 excavation limit)
- Trench (to identify landfill boundary and types of waste)
- - - Parcel E-2 Landfill

^a Samples analyzed for nonradioactive chemicals only unless otherwise noted.







Characterization drilling and radiological screening of soil at Parcel E-2 focused excavations is conducted before excavation begins



Radiological screening
of soil cores ensure contaminated soil
is excavated and removed using
proper safety procedures



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Highest Concerns – depends on future use

Candlestick Point and Hunters Point Shipyard Summary Land Use Statistics

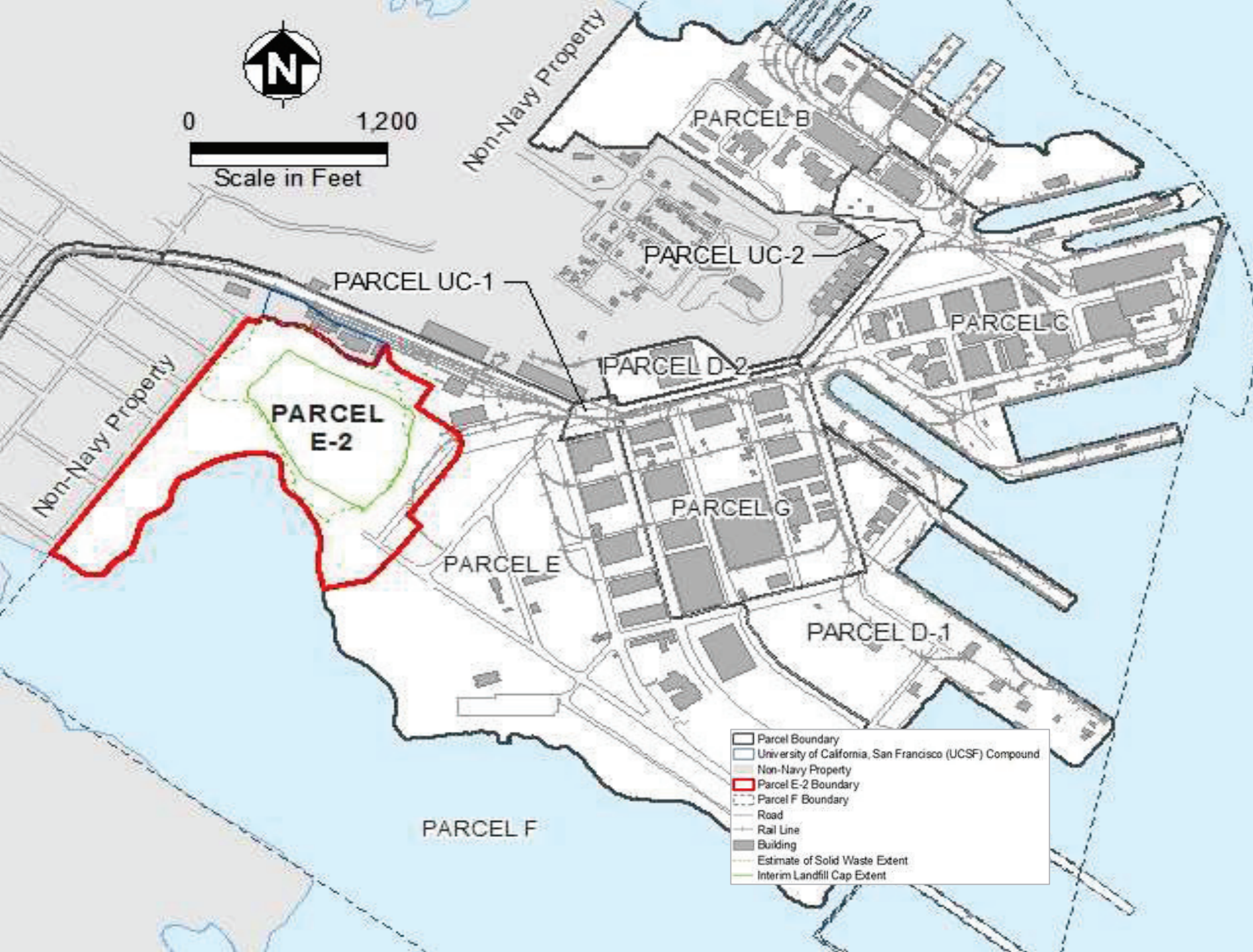
	Hunters Point Shipyard	Candlestick Point	Project Total
Resident Units	5,875	6,225	12,100
Neighborhood Retail (sq. ft.)	125,000	125,000	250,000
Regional Retail (sq. ft.)	—	635,000	635,000
Office and Research & Development (sq. ft.)	3,000,000	150,000	3,150,000
Hotel (sq. ft.)	—	150,000	150,000
Arena (sq. ft.)	—	75,000	75,000
Artists' Space (sq. ft.)	255,000	—	255,000
Community Uses (sq. ft.)	50,000	50,000	100,000
Open Spaces (acres)	220.4	160.1	326.5

Navy Parcel Estimated Transfer Dates

Parcel	Acres	% of Total Acres	Estimated Transfer Date
A	50	10%	Complete
A-1	20	4%	Complete
B-1	20 (approx.)	4%	2010
B-2	20 (approx.)	4%	2016
C	75	15%	2017
D-1	50	10%	2016
D-2	6	1%	2015
E-1	129	26%	2022
E-2	47	10%	2019
G	40	8%	2016
IR 7/18	14	3%	2016
UC-1	4	1%	2015
UC-2	4	1%	2015
UC-3	13	3%	2017
F	437*	—	2019
Total	492		

* Parcel F Excluded from Total Acres





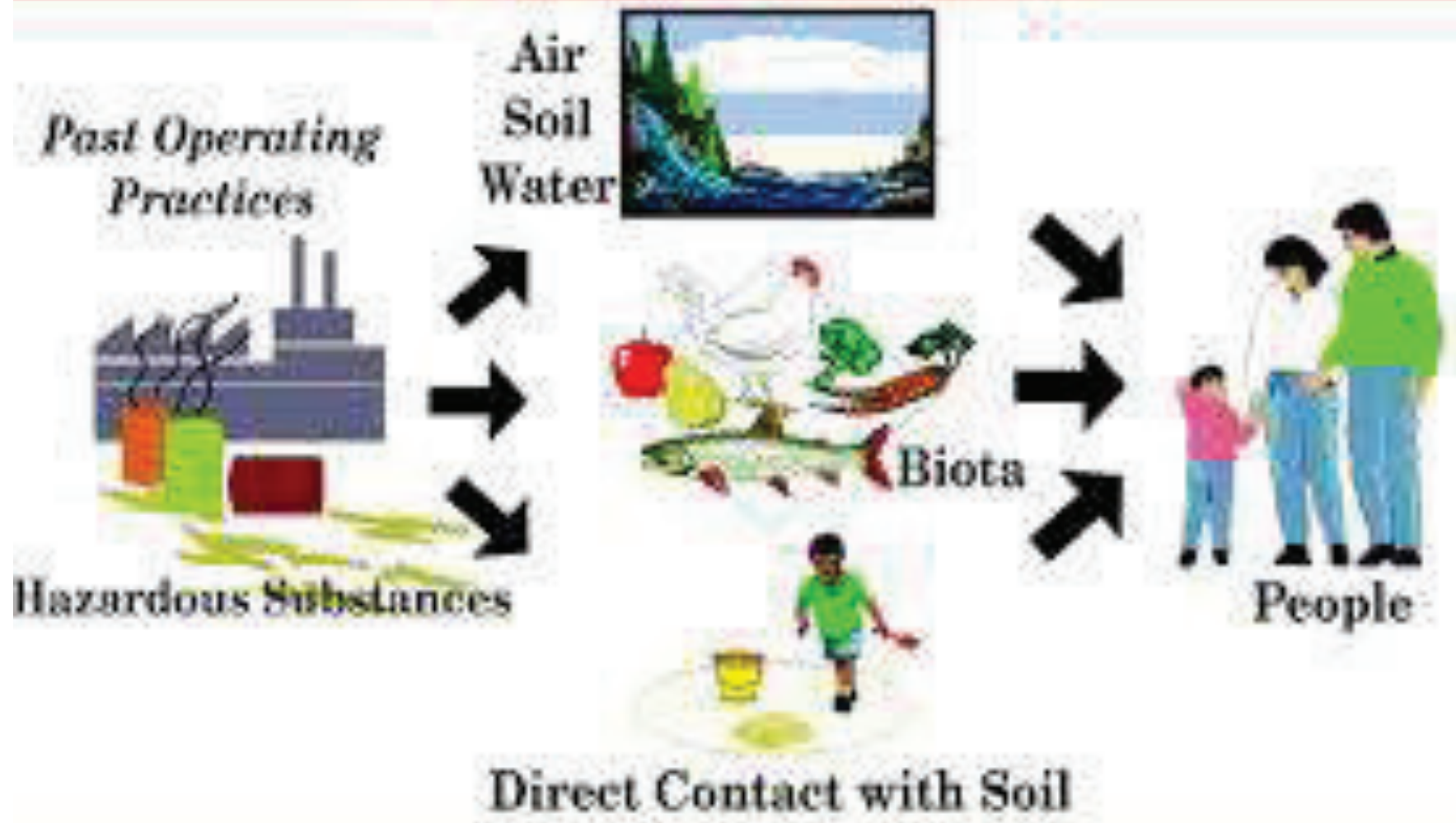
**What are
likely
exposures?**

People?

Ecosystem?



Exposure Pathways

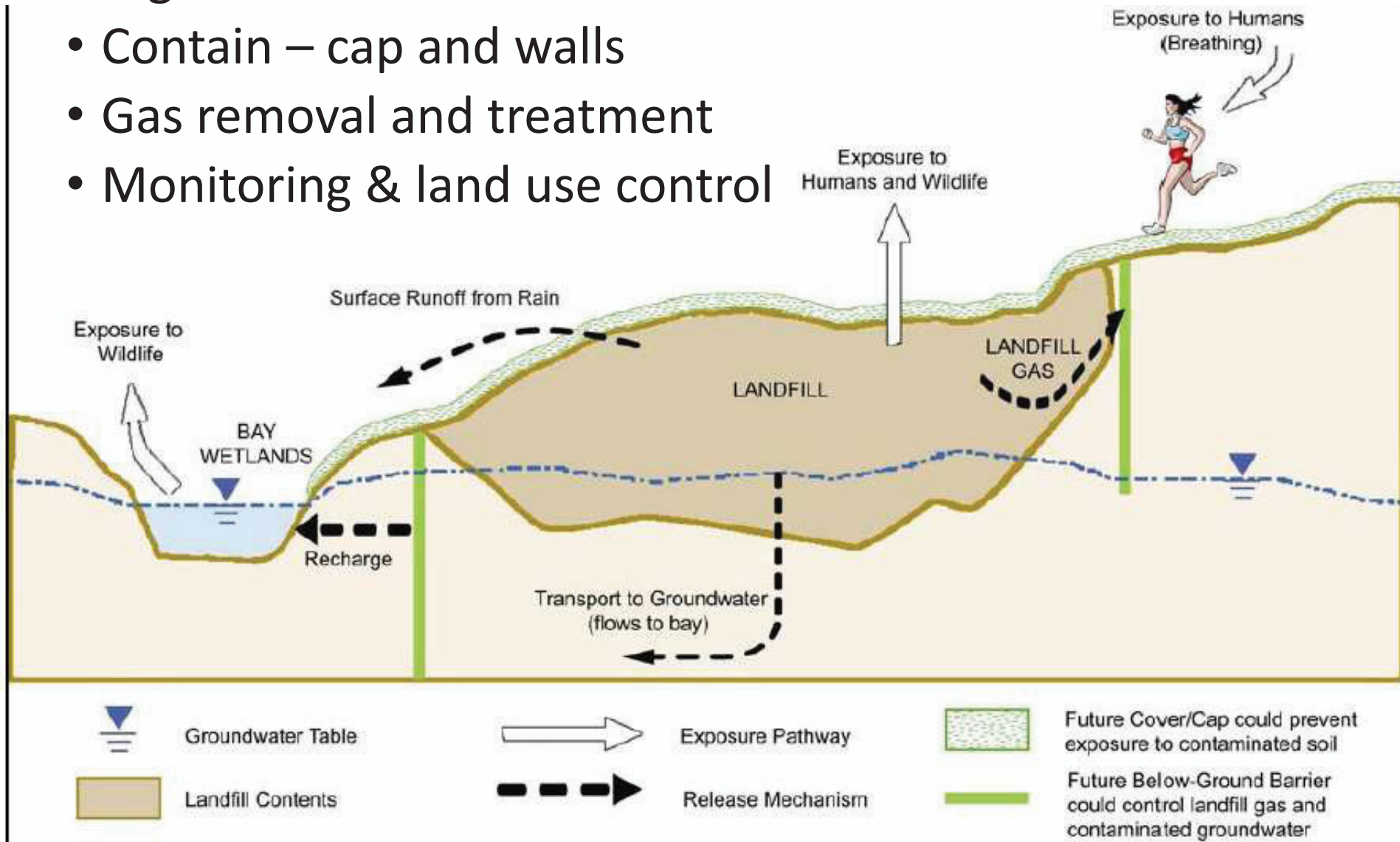


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- Dig out and remove above action levels
- Contain – cap and walls
- Gas removal and treatment
- Monitoring & land use control







Excavation of soil and sediment at Parcel E-2 will remove contaminated material from the subsurface




Excavations:

-  Metal Slag Area
(2007 excavation limit)
-  PCB Hot Spot Area
(2007 excavation limit)
-  Additional Excavation
(2010-2011; ongoing)^a

Groundwater Containment:

-  Sheet-Pile Wall
-  Extraction Trench

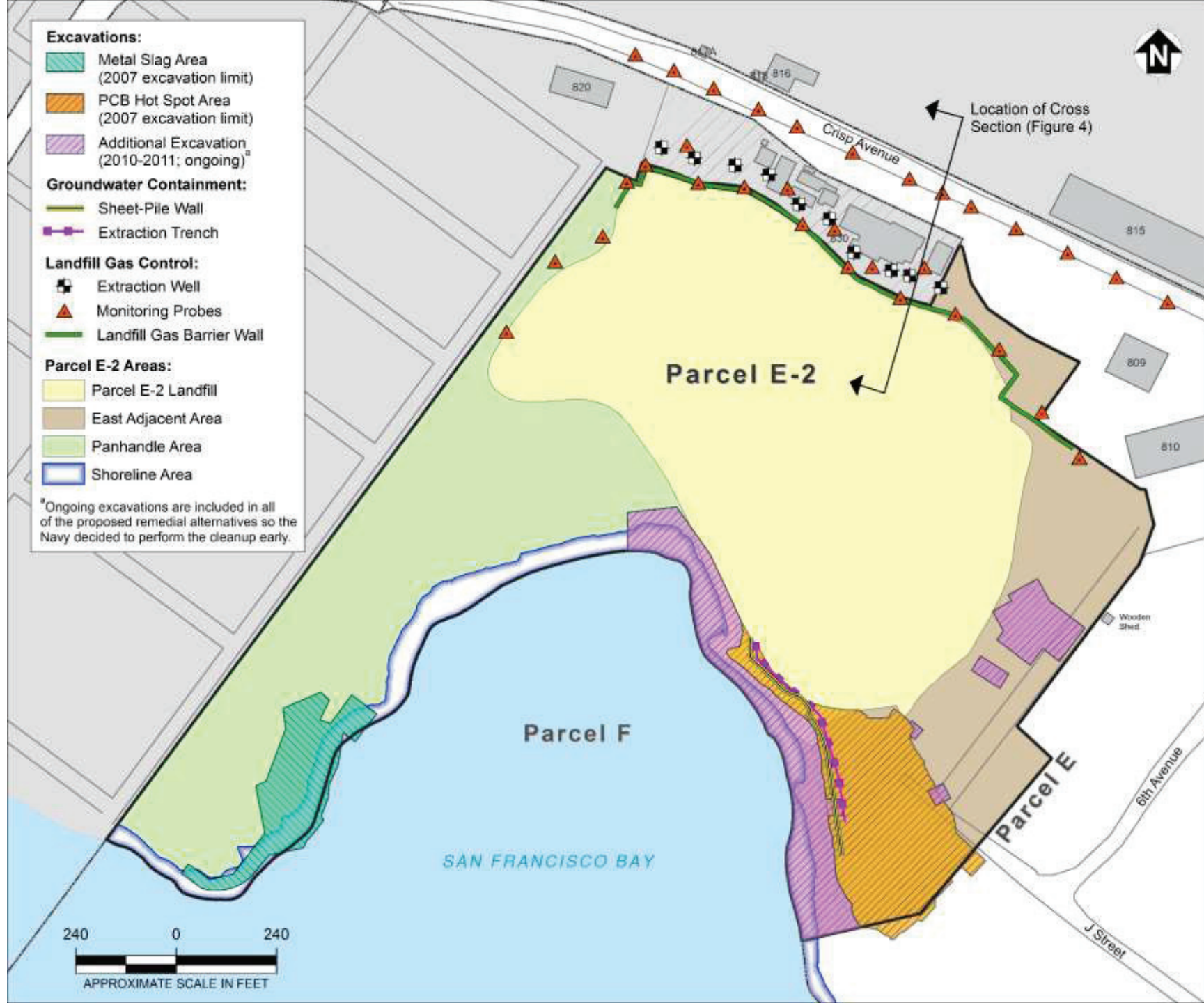
Landfill Gas Control:

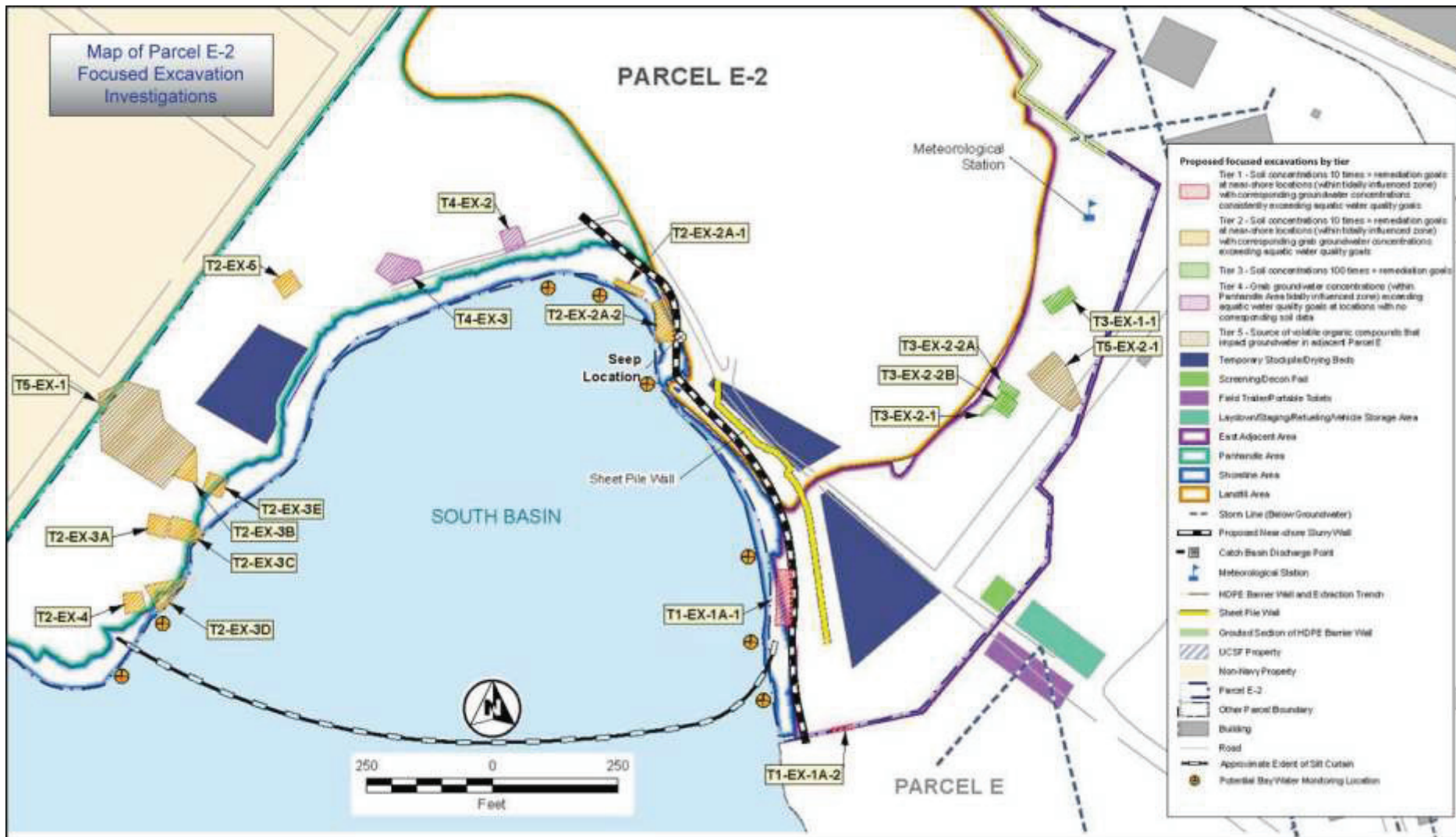
-  Extraction Well
-  Monitoring Probes
-  Landfill Gas Barrier Wall

Parcel E-2 Areas:

-  Parcel E-2 Landfill
-  East Adjacent Area
-  Panhandle Area
-  Shoreline Area

^aOngoing excavations are included in all of the proposed remedial alternatives so the Navy decided to perform the cleanup early.





As of mid-2015:

- **Removed more than 34,000 dump trucks of chemical contaminated soil**
- **2,850 truckloads from Parcel E-2**



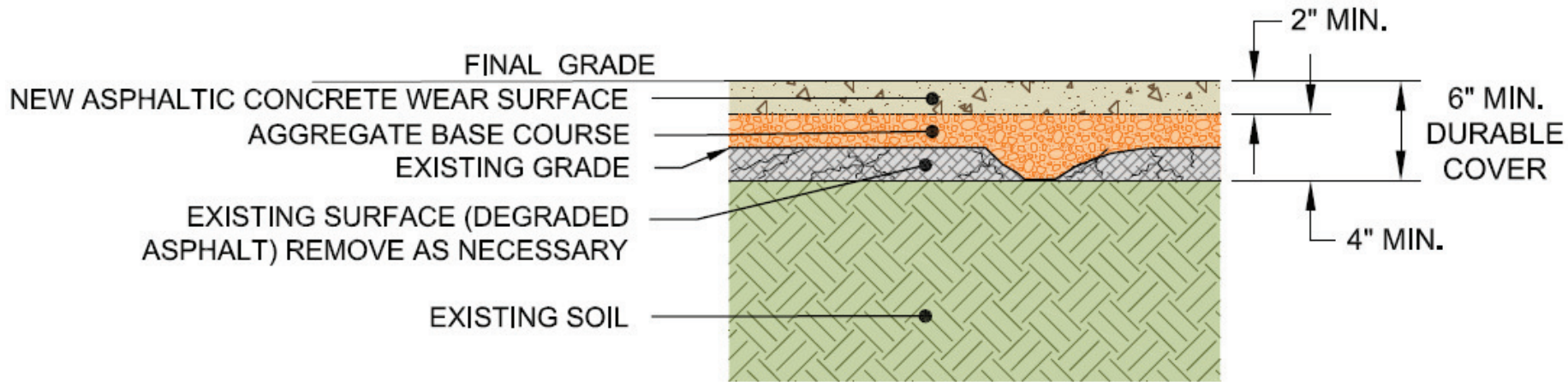
- **Removed 28 miles of sewer/storm drain lines, during which 2% of piping required disposal as radioactive waste**

- **Removed more than 21,000 truckloads of soil in support of sanitary sewer and storm drain line removal; 5% of soil required disposal as radioactive waste**



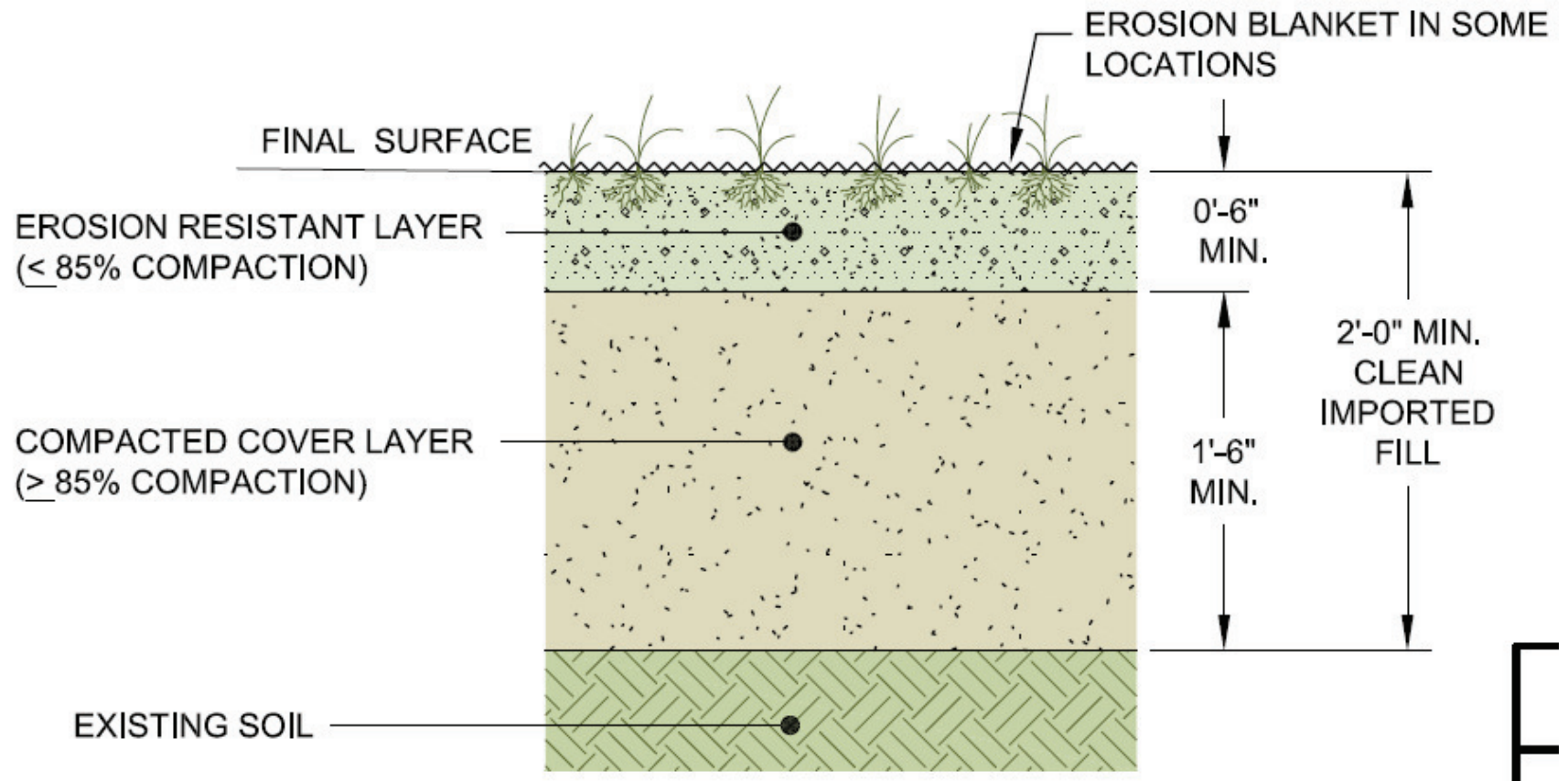
Durable Covers across the site

One version:

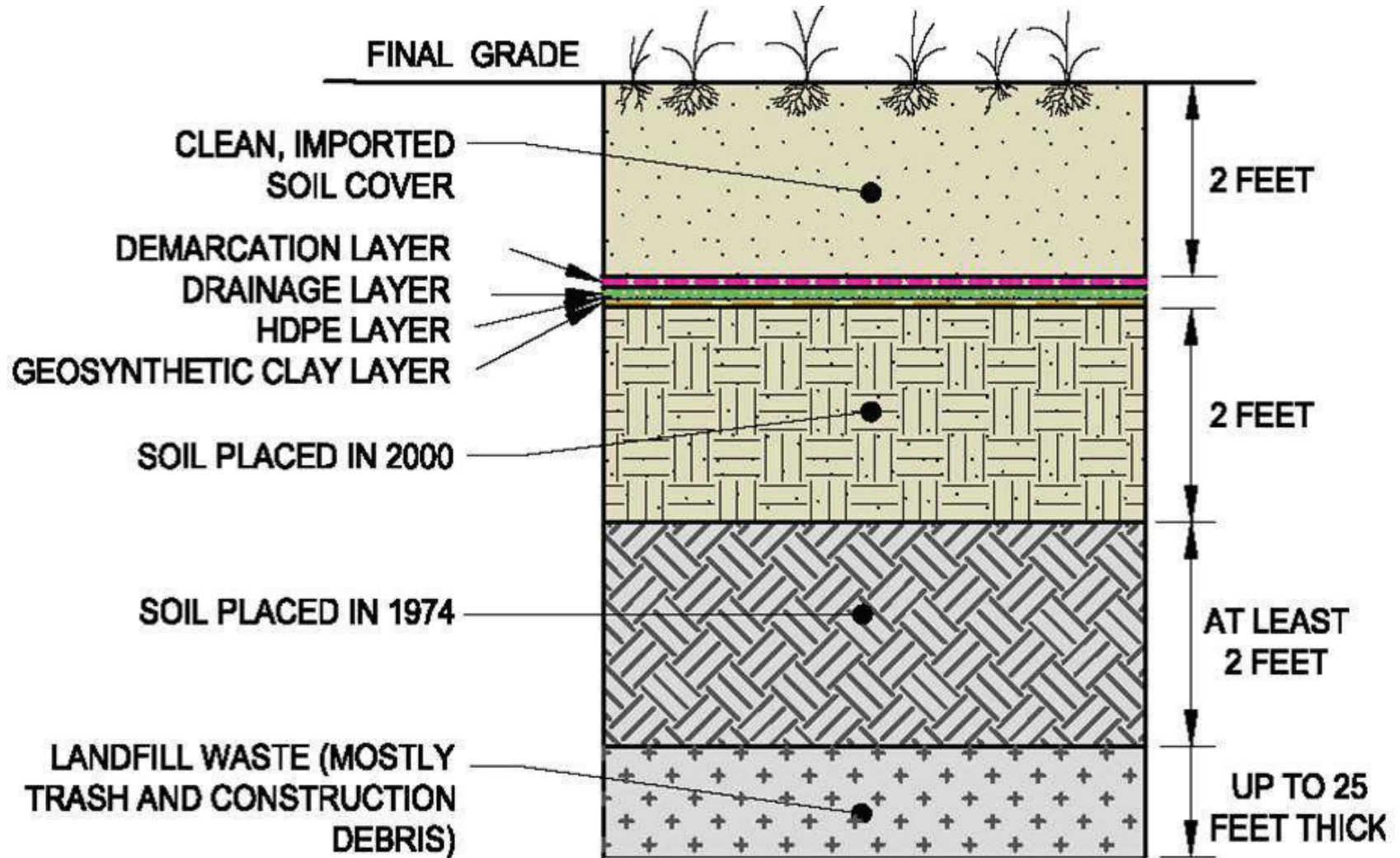


6" ASPHALT PAVEMENT COVER

Another type of durable cover



Durable cover on Landfill





Barriers

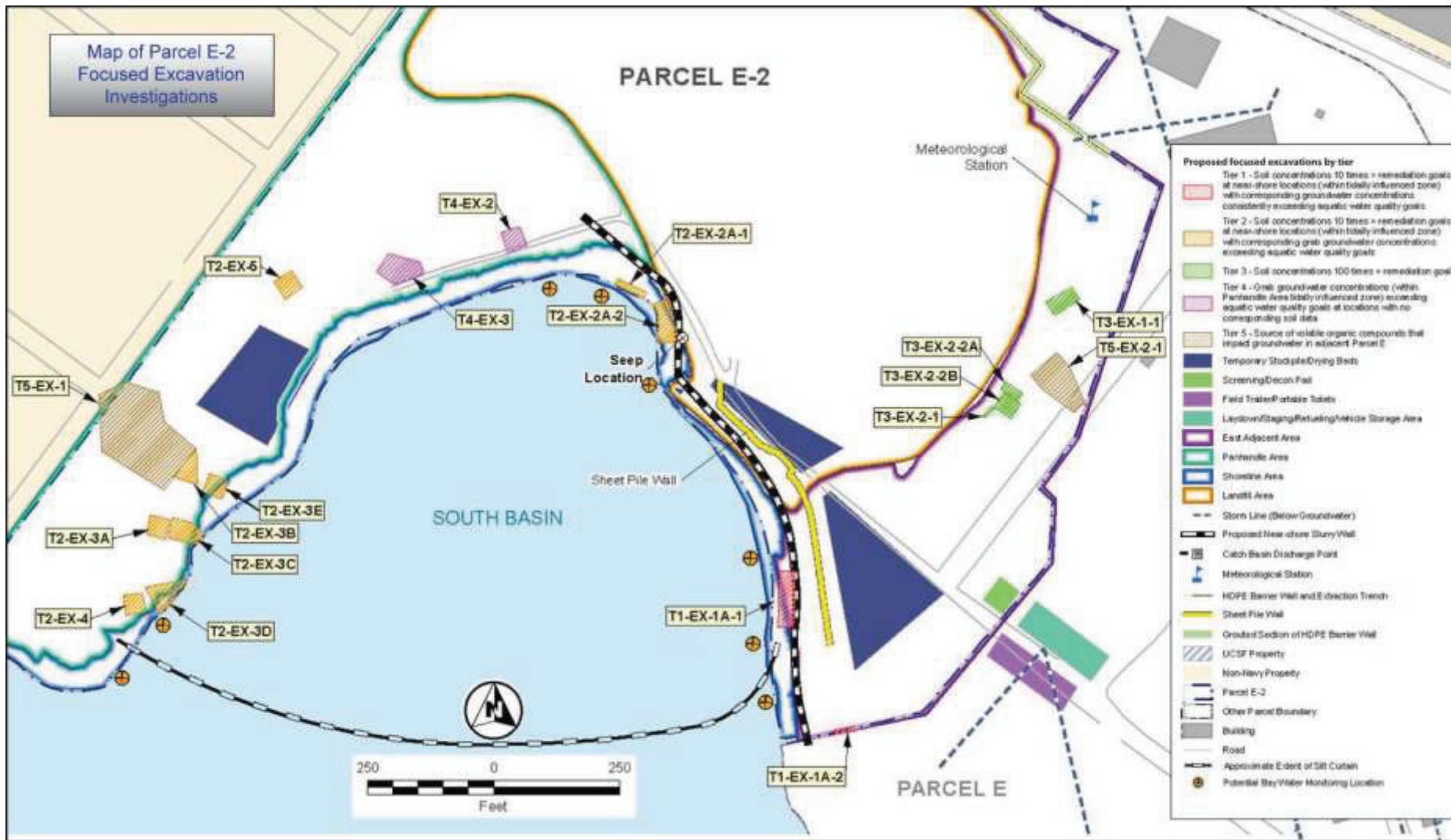


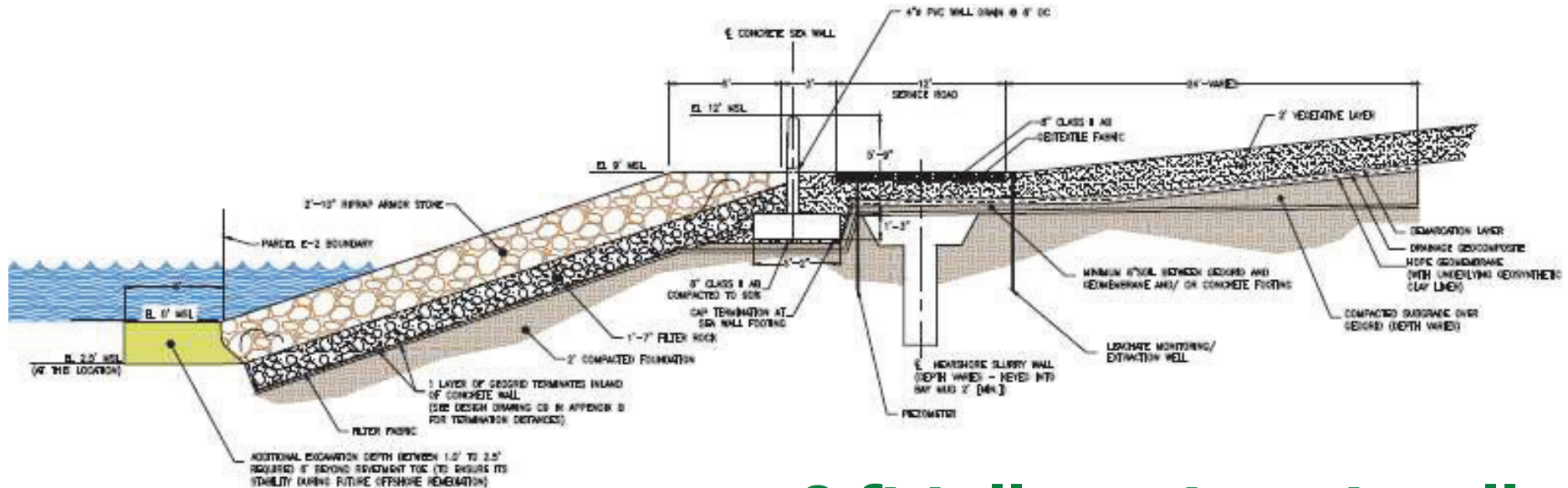
Walls

- Sheet pile wall
- Grouted High Density Poly Ethylene (HDPE) barrier wall
- Slurry wall
- Revetment Wall
- Sea Wall



Shoring installation during construction of the slurry wall






LEGEND:

-  RIPRAP ARMOR STONE
-  FILTER ROCK
-  COMPACTED FOUNDATION
-  VEGETATIVE LAYER
-  CLEAN FILL PLACED IN OFFSHORE EXCAVATION
-  COMPACTED SUBGRADE OVER GEOGRID
-  SAN FRANCISCO BAY
-  FILTER FABRIC
-  HDPE HIGH-DENSITY POLYETHYLENE
-  NSL MEAN SEA LEVEL
-  PVC POLYVINYL CHLORIDE

NOT TO SCALE

**9 ft tall revetment wall
+ 3 ft tall seawall
= 12 ft tall total
X 35 ft wide**

 Engineering/Remediation Resources Group, Inc. 1155 Sansome St., Suite 200 San Francisco, California 94134 (415) 398-8074	CLIENT: Department of the Navy ERAC PMO West	SHORELINE REVETMENT DETAIL		
	LOCATION: Hunters Point Naval Shipyard San Francisco, California	DRAWN BY: SC 02/20/14	CHECKED BY: PL 02/20/14	PROJECT NO. 25-049

Revetment wall built for

- **3 feet of sea level rise**
- **4.1 foot high wave (once in 100 years)**
- **8.0 earthquake (worse than 1906 San Francisco quake)**
- **Displacement 3 X more conservative than EPA guidance requires**



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Soil piles are sprayed down to minimize dust in accordance with the HPNS dust control measures









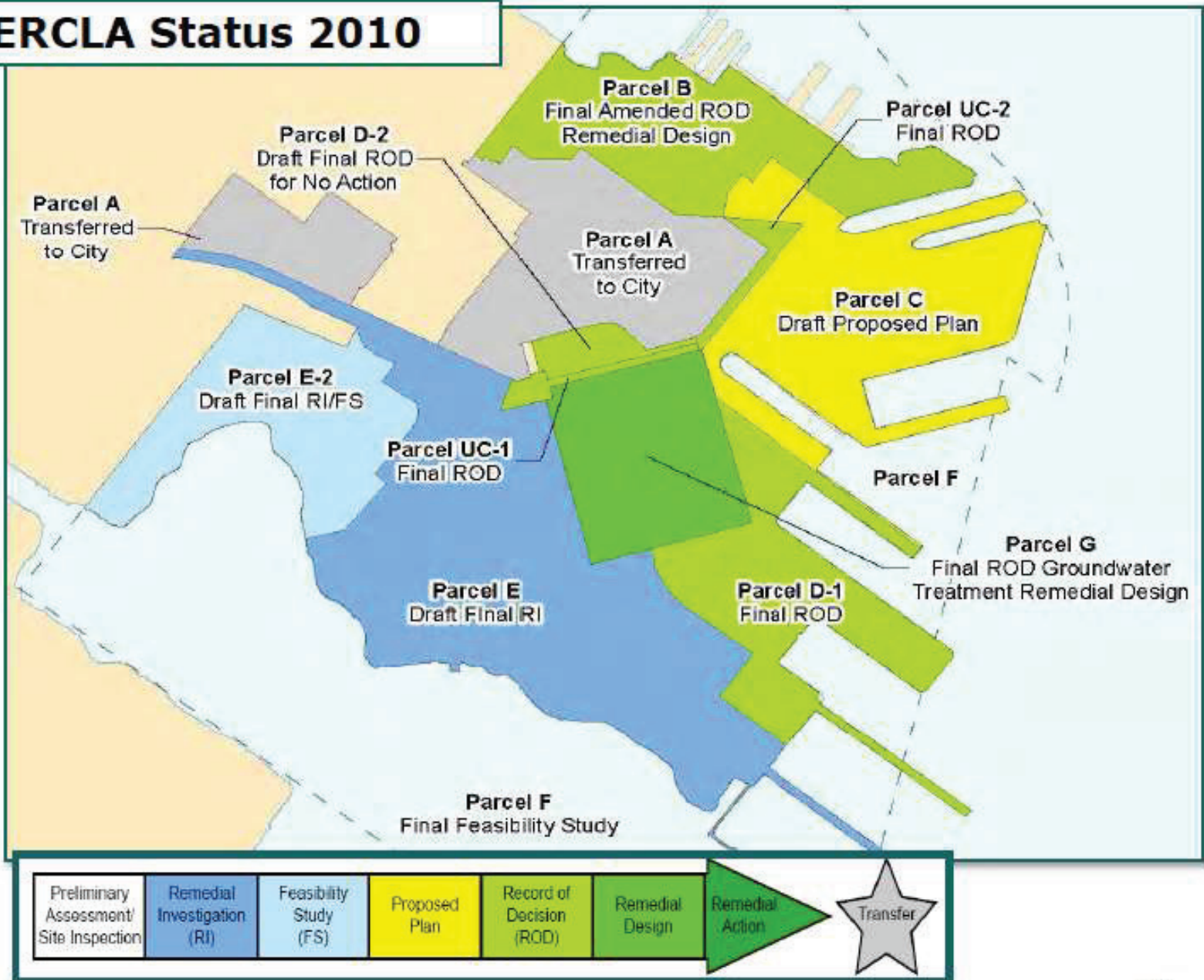


Superfund process

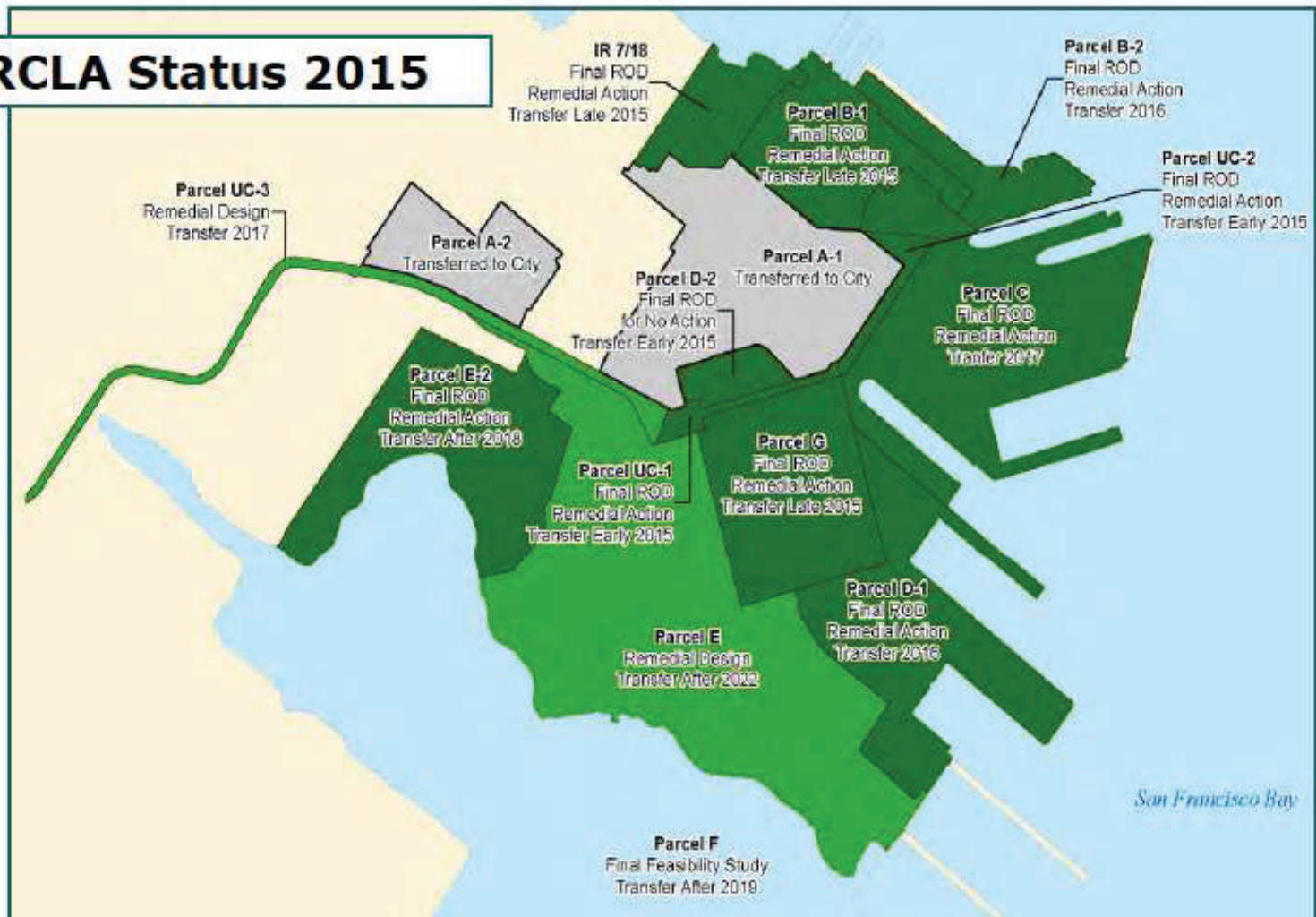
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CERCLA Status 2010



CERCLA Status 2015



Preliminary
Assessment/
Site Inspection

Remedial
Investigation
(RI)

Feasibility
Study
(FS)

Proposed
Plan

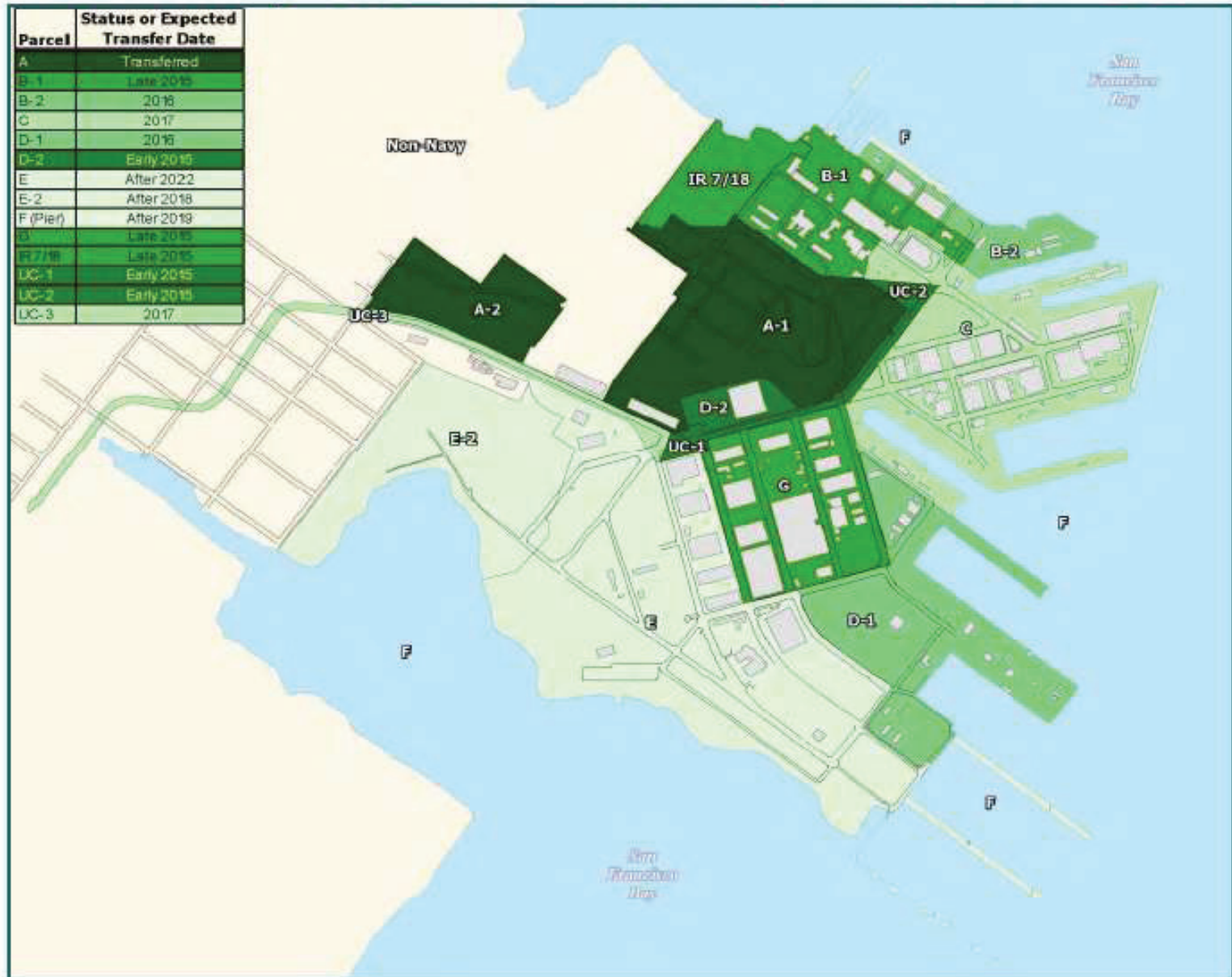
Record of
Decision
(ROD)

Remedial
Design

Remedial
Action

Transfer

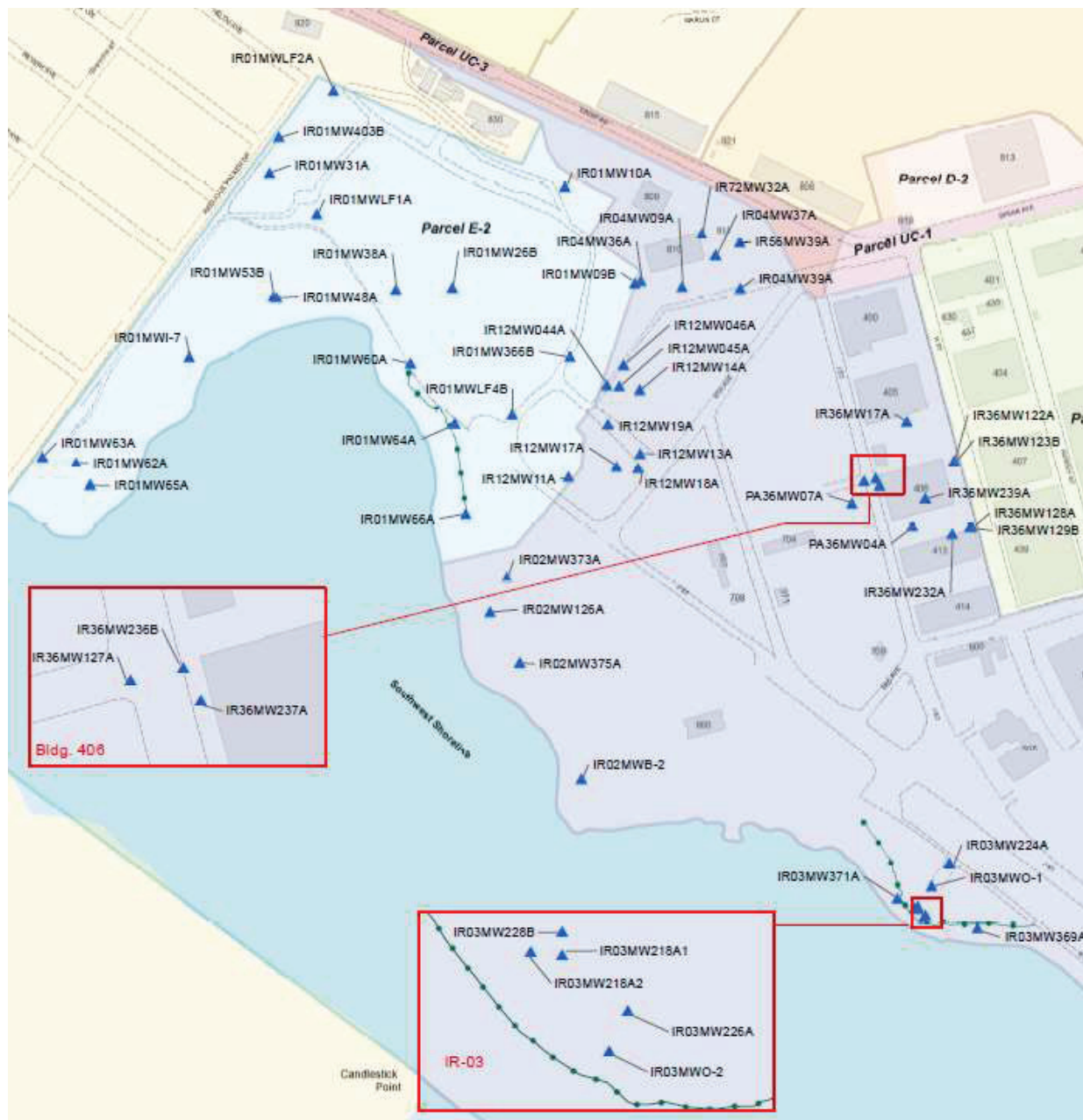
Parcel Map and Estimated Transfer Dates



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Sanitary Sewer/Storm Drain Line Removal

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- **Removed more than 34,000 dump trucks of chemical contaminated soil**
- **Removed more than 21,000 truckloads of soil in support of sanitary sewer and storm drain line removal; 5% of soil required disposal as radioactive waste**



As of mid-2015:

- Treated 8.6 million gallons of groundwater
- Closed 52 Petroleum Sites



QUESTIONS?

